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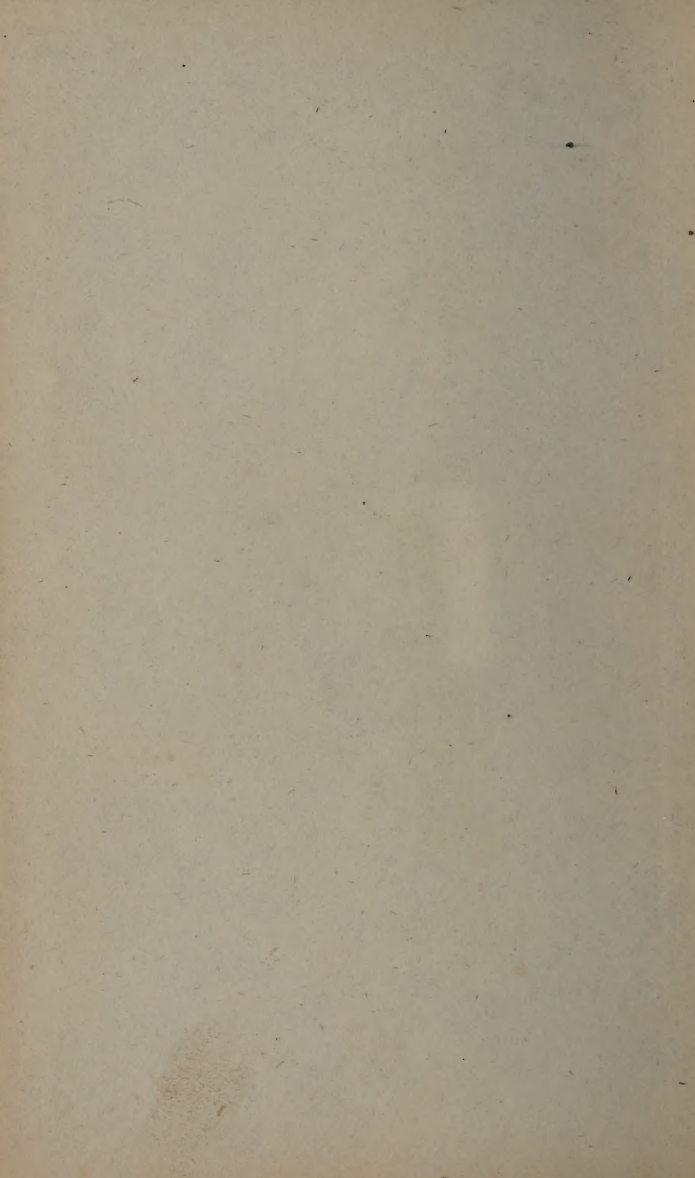
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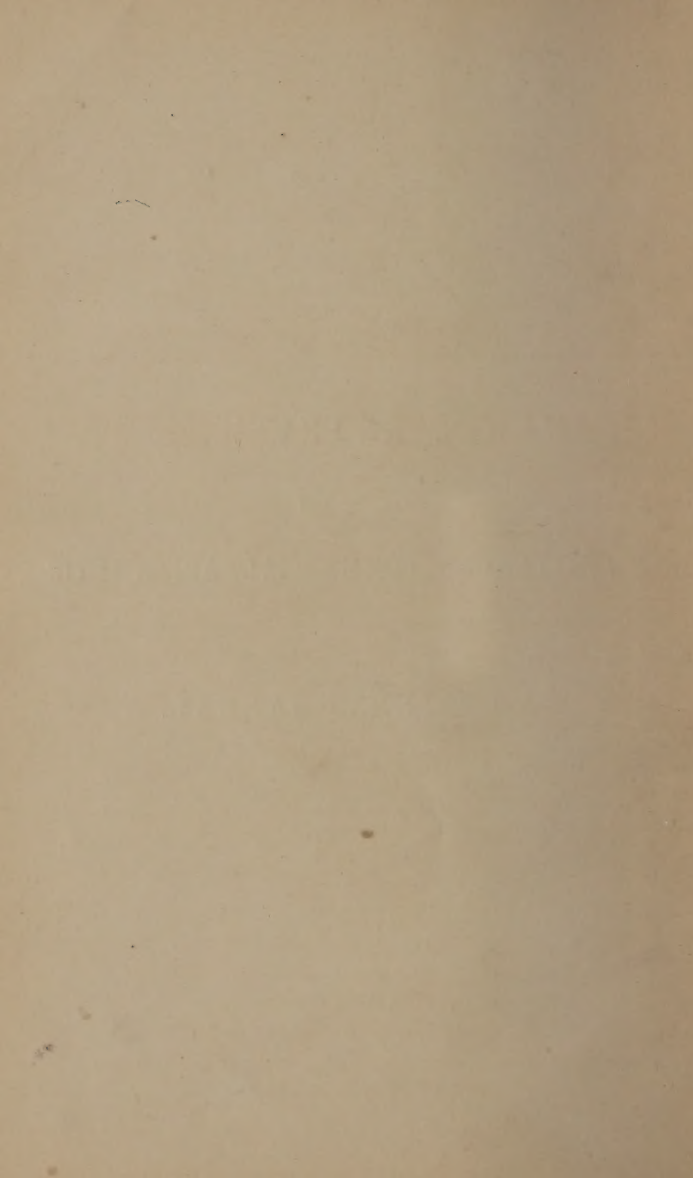
KEY

TO THE

CRITTENDEN COMMERCIAL ARITHMETIC

AND

BUSINESS MANUAL.





# KEY

TO THE

## CRITTENDEN

## COMMERCIAL ARITHMETIC,

BY

JOHN GROESBECK,

PRINCIPAL OF THE CRITTENDEN PHILADELPHIA COMMERCIAL COLLEGE.



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## SUGGESTIONS TO TEACHERS.

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THE study of Book-Keeping should always be preceded or accompanied by the study of Commercial Calculations and Business Forms. It is then not only more easily understood, but, without this preparatory knowledge, many things will be very imperfectly comprehended.

In order to save space, the number of exercises given is limited. It is thought, however, that most teachers can easily increase the exercises under many of the rules, if desired. In Interest Accounts, each example given should be worked out by all the different methods for practice, and also as a means of comparison. The Second Method is by some called the French Method, and is considered more nearly accurate than the first, as there are no fractions in the operations to affect the final result.

In the solution of the Foreign Invoices, absolute accuracy is not attempted; approximate values are all that are required, and the easiest method of computation is the one most generally adopted. The student should not be confined to one method only. Business practice is subject to so much variation,

caused by different usages and modifying circumstances, that he who is familiar with only one method will meet with many difficulties, and frequently with serious misunderstandings.

The explanations accompanying the Business Forms should be closely studied in connection with the Forms themselves, and the student may proceed with advantage through both Forms and Calculations simultaneously. Entries from works on Book-Keeping will afford additional exercises, which will be found useful. For instance, an entry of a sale may be given, and then the student required to write out the Bill or Invoice, Receipt, Note, or Order, according to the circumstances of the case, and so with other transactions. Thoroughness cannot be too much insisted upon. Mechanical facility saves time, and, to the merchant most especially, time is money.

# KEY.

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## Addition.

Page.	Art.	Example.	Answer.
17	11	4 . . . . .	3825
18	14	. . . . .	8014
"	"	. . . . .	5846
19	15	. . . . .	1100.08

## Cancellation.

20	22	1 . . . . .	36
"	"	2 . . . . .	81 lbs.
"	"	3 . . . . .	\$189

## Fractions.

21	24	2 . . . . .	$\frac{24}{55}$
"	"	3 . . . . .	$\frac{27}{58}$
"	"	4 . . . . .	$\frac{84}{527}$
"	25	2 . . . . .	$\frac{6}{7}$
"	"	3 . . . . .	$\frac{48}{55}$
"	"	4 . . . . .	$5\frac{1}{4}$
"	"	5 . . . . .	15
"	"	6 . . . . .	$\frac{4}{5}$
"	"	7 . . . . .	$\frac{1}{2}$
"	"	8 . . . . .	2
"	"	9 . . . . .	$39\frac{3}{5}$

Page.	Art.	Example.	Answer.
21	25	10 . . . . .	$2\frac{3}{1}$
"	"	11 . . . . .	$2\frac{5}{1}$
"	"	12 . . . . .	$2\frac{2}{5}$
22	22	2 . . . . .	$142\frac{2}{3}$
"	"	3 . . . . .	$142\frac{1}{2}\frac{1}{3}$
"	"	4 . . . . .	$13\frac{3}{5}$
"	"	5 . . . . .	$46\frac{1}{2}$
"	"	6 . . . . .	$12\frac{89}{163}$
23	29	4 . . . . .	.25
"	"	5 . . . . .	.6666 +
"	30	3 . . . . .	27.30625
"	"	4 . . . . .	124.875
"	"	5 . . . . .	117.890625
"	"	6 . . . . .	1.500625
"	"	7 . . . . .	.8256875
"	"	8 . . . . .	97.78125
"	"	9 . . . . .	$.79\frac{1}{16}$
"	"	10 . . . . .	$\$1.38\frac{3}{4}$
24	31	3 . . . . .	5.3873 +
"	"	4 . . . . .	33.3333 +
"	"	5 . . . . .	81.84375

## Denominate Numbers.

25	38	2 . . . . .	1421 pts.
"	"	3 . . . . .	1362 in.
"	"	4 . . . . .	1440 min.
"	"	5 . . . . .	2385 lbs.
"	"	6 . . . . .	4800 pts.
26	39	2 . . . . . 7 T. 14 cwt. 3 qrs. 10 lbs.	
"	"	3 . . . . . 119 m. 6 fur. 24 rds. 3 yds. 2 ft.	
"	"	4 . . . . . 1 lb. 4 oz. 6 pwt. 22 grs.	
"	40	2 . . . . .	$524\frac{1}{4}\frac{2}{7}$ gals.

Page.	Art.	Example.	Answer.
26	40	3 . . . . .	\$6923.08
27	41	3 . . . . .	$1\frac{3}{8}$
"	"	4 . . . . . 20 h. 34 min. 17 $\frac{1}{7}$ sec.	
"	"	5 . . . . .	15 s. 10 d.
"	"	6 . . . . .	$\frac{7}{800}$
"	"	7 . . . . .	$\frac{3}{640}$
"	42	2 . . . . .	$\frac{1}{8}$
"	"	3 . . . . .	$\frac{3}{32}$
"	"	4 . . . . .	$\frac{3}{168}$
"	"	5 . . . . .	$\frac{1}{1056}$
28	43	3 . . . . .	3.34375 bus.
"	"	4 . . . . .	.04375 tons.
"	"	5 . . . . .	2.375 gals.
29	44	2 . . . . .	17 cwt. 2 qrs.
"	"	3 . . . . .	1 bus. 3 pks. 4 qts.
"	"	4 . . . . .	5 oz. 2 pwt.
"	"	5 . . . . . 2 yrs. 2 mos. 9 days, 18 h.	

## Miscellaneous Examples.

29	44	1 . . . . .	\$46.94
"	"	2 . . . . . \$264.58—136.07—119.06	
"	"	3 . . . . .	\$69.57
"	"	4 . . . . .	29675.796 in.
"	"	5 . . . . . \$22.94—\$114.71	
"	"	6 . . . . .	\$283.77
"	"	7 . . . . .	\$383.87
"	"	8 . . . . .	\$51.66

## Practice.

30	46	5 . . . . .	\$2567.25
"	"	6 . . . . .	804.69



## Contractions.

Page.	Art.	Example.	Answer.
32	47	3 . . . . .	2816
"	"	4 . . . . .	2504
"	"	5 . . . . .	504
"	"	6 . . . . .	1575
"	"	7 . . . . .	4059
"	"	8 . . . . .	3575
"	"	9 . . . . .	4216
"	"	10 . . . . .	1224
"	"	11 . . . . .	4096
"	"	12 . . . . .	1190
"	"	13 . . . . .	5256
"	"	14 . . . . .	1295
"	"	15 . . . . .	2025
"	"	16 . . . . .	4356
33	50	4 . . . . .	1140
"	"	5 . . . . .	4690
"	"	6 . . . . .	1032
"	"	7 . . . . .	3276
"	"	8 . . . . .	1568
"	"	9 . . . . .	640
"	"	10 . . . . .	810
"	"	11 . . . . .	560
"	"	12 . . . . .	6120
"	"	13 . . . . .	480
34	51	3 . . . . .	45864
"	"	4 . . . . .	107973
"	"	5 . . . . .	605914
"	"	6 . . . . .	98532
"	"	7 . . . . .	345912
"	"	8 . . . . .	137637

Page.	Art.	Example.	Answer.
34	51	9 . . . . .	99640
"	"	10 . . . . .	206724
"	"	11 . . . . .	182970
"	"	12 . . . . .	527724
"	"	13 . . . . .	505215
"	"	14 . . . . .	\$5982.69
"	"	15 . . . . .	\$15609.00
"	52	2 . . . . .	4455
"	"	3 . . . . .	25488
"	"	4 . . . . .	87375
"	"	5 . . . . .	50750
"	"	6 . . . . .	324675
"	"	7 . . . . .	4028
"	"	8 . . . . .	2457
36	53	3 . . . . .	588
"	"	4 . . . . .	576
"	"	5 . . . . .	1953
"	"	6 . . . . .	1326
"	"	7 . . . . .	\$3.36
			8.84
			18.36
			30.24
			278.74
			20.72
			30.24
37	54	3 . . . . .	120
		4 . . . . .	60
		5 . . . . .	4800
		6 . . . . .	8100
		7 . . . . .	5500
		8 . . . . .	160

Page.	Art.	Example.	Answer.
37	54	9 . . . . .	2000
"	"	10 . . . . .	7000
"	"	11 . . . . .	$3214\frac{2}{7}$
"	"	12 . . . . .	61000
"	"	13 . . . . .	121000
"	"	14 . . . . .	92100
"	56	2 . . . . .	672
"	"	3 . . . . .	648
"	"	4 . . . . .	1115
"	"	5 . . . . .	1236
"	57	2 . . . . .	$35\frac{1}{6}$
"	"	3 . . . . .	$59\frac{1}{9}$
"	"	4 . . . . .	$36\frac{1}{9}$
"	"	5 . . . . .	$59\frac{1}{25}$
"	"	6 . . . . .	$20\frac{1}{4}$
"	"	7 . . . . .	$45\frac{9}{16}$
"	"	8 . . . . .	$39\frac{13}{16}$
"	"	9 . . . . .	$161\frac{1}{9}$
"	"	10 . . . . .	$52\frac{7}{9}$
38	59	11 . . . . .	4225
"	"	12 . . . . .	1225
"	"	13 . . . . .	422500
"	"	14 . . . . .	202500
"	60	2 . . . . .	$68\frac{1}{18}$
"	"	3 . . . . .	$84\frac{1}{48}$
"	"	4 . . . . .	$66\frac{1}{10}$
"	"	5 . . . . .	$43\frac{7}{8}$
"	"	6 . . . . .	$150\frac{1}{18}$
"	"	7 . . . . .	$53\frac{3}{49}$
"	"	8 . . . . .	$72\frac{3}{16}$
"	"	10 . . . . .	$20\frac{2}{9}$
"	"	11 . . . . .	$156\frac{5}{36}$

Page.	Art.	Example.	Answer.
38	60	12 . . . . .	$56\frac{4}{5}$
"	"	13 . . . . .	$42\frac{3}{16}$
"	"	14 . . . . .	$72\frac{2}{9}$
39	62	2 . . . . .	24.750
"	"	3 . . . . .	19.680
"	"	4 . . . . .	33.375
"	"	6 . . . . .	{ 47975 48925 50350
40	63	3 . . . . .	1599
"	"	4 . . . . .	8096
"	"	5 . . . . .	1591
"	"	6 . . . . .	1584
"	"	7 . . . . .	6351
"	"	8 . . . . .	2419
"	"	9 . . . . .	4275
"	"	10 . . . . .	2275
"	64	11 . . . . .	$143\frac{3}{4}$
"	"	12 . . . . .	$48\frac{8}{9}$
"	"	13 . . . . .	$15\frac{1}{16}$
"	"	14 . . . . .	3599
"	"	15 . . . . .	14364
41	67	3 . . . . .	$150\frac{7}{9}$
"	"	4 . . . . .	$49\frac{2}{3}$
"	"	5 . . . . .	$11431\frac{9}{11}$
"	"	6 . . . . .	{ 11680 116800 $150171\frac{5}{7}$ $112628\frac{4}{7}$ 153300 $143345\frac{5}{11}$
41	68	3 . . . . .	4176
"	"	4 . . . . .	142860

Page.	Art.	Example.	Answer.
42	69	3 . . . . .	$281\frac{46}{100}$
"	"	4 . . . . .	$32\frac{13}{15}$
"	"	5 . . . . .	$512\frac{104}{125}$
"	"	6 . . . . .	$419\frac{43}{400}$
"	"	7 . . . . .	$142\frac{11}{25}$
"	"	8 . . . . .	$44\frac{193}{250}$
"	"	9 . . . . .	$36\frac{39}{70}$
"	"	10 . . . . .	$37\frac{37}{75}$
43	70	3 . . . . .	$114\frac{29}{98}$
"	"	4 . . . . .	$33\frac{66}{97}$
"	"	5 . . . . .	$45\frac{83}{93}$
"	"	6 . . . . .	$48\frac{5}{11}$
"	"	7 . . . . .	$27\frac{30}{91}$

## Special Calculations.

43	71	2 . . . . .	\$429
"	"	3 . . . . .	\$317 52
44	72	2 . . . . .	{ 4810 yds.
			{ $1581\frac{1}{4}$ "
			{ $2308\frac{3}{4}$ "
"	74	2 . . . . .	{ $246\frac{2}{15}$ gals.
			{ 90 "
			{ $45\frac{1}{5}$ "

## Proportion.

47	87	2 . . . . .	\$42
"	"	3 . . . . .	\$75
"	"	4 . . . . .	\$20.25
"	"	5 . . . . .	\$71.43
"	"	6 . . . . .	12 rods.
"	"	7 . . . . .	\$28.78
47	87	8 . . . . .	\$54.71
"	"	9 . . . . .	288.22

## Distributive Proportion.

Page.	Art.	Example.	Answer.
49	92	3 . . . . .	A. 200 shares. B. 100 " C. 150 "
"	"	4 . . . . .	A. \$9000 B. 12000 C. 6000 D. 3000
			<hr/>
			\$30000
"	"	5 . . . . .	A. \$28 B. 14 C. 98
"	"	6 { 100 : 76 :: 12 cwt. : 9 cwt. $13\frac{1}{5}$ 100 : 76 :: 12 cwt. : 1 cwt. 2 qr. $20\frac{4}{5}$ 100 : 76 :: 12 cwt. : 1 cwt. $22\frac{10}{5}$ lbs. (112 lbs. = 1 cwt.)	{ A. \$1650 B. 2640 C. 2310
50	93	3 . . . . .	A. \$15, B. \$12, C. \$18

## Medial Proportion.

52	95	2 . . . . .	$11\frac{11}{64}$ c.
53	96	2 . . . . .	20 lbs. @ 70 "
			10 " " 80 "
			10 " " 100 "
			20 " " 110 "
55	100	1 . . . . .	$14\frac{2}{11}$ carats.
"	"	2 . . . . .	36 gals.

## Medial Proportion.

Page.	Art.	Example.	Answer.
55	100	3 . . . . .	$\left\{ \begin{array}{l} 15 \text{ bus. @ } 50 \text{ c.} \\ 16 \text{ " " } 70 \text{ " } \\ 30 \text{ " " } 90 \text{ " } \end{array} \right.$
"	"	4 . . . . .	$\left\{ \begin{array}{l} 25 \text{ lbs. @ } 8 \text{ c.} \\ 25 \text{ " " } 12 \text{ " } \\ 150 \text{ " " } 14 \text{ " } \end{array} \right.$
"	"	5 . . . . .	$\left\{ \begin{array}{l} 10 \text{ bbls. @ } \$8 \\ 20 \text{ " " } 9 \\ 20 \text{ " " } 12 \end{array} \right.$
			<div style="text-align: center;">or,</div> $\left\{ \begin{array}{l} 4 \text{ bbls. @ } \$8 \\ 28 \text{ " " } 9 \\ 18 \text{ " " } 12 \end{array} \right.$

## Percentage.

57	104	2 . . . . .	90%
"	105	2 . . . . .	\$22.800
58	106	1 . . . . .	182.50
"	"	2 . . . . .	2.25
"	"	3 . . . . .	16.20
"	"	4 . . . . .	$83\frac{6}{13}\%$
"	"	5 . . . . .	$\frac{1}{2}\%$
"	"	6 . . . . .	\$3550.00
"	"	7 . . . . .	\$350
"	"	8 . . . . .	6%

Page 58, Ex. 9.

When sold at \$1000.

$$\frac{1}{6} \text{ of } \$100 = \$16.67$$

$$1\frac{1}{2} \text{ " } \$1000 = 15.00$$

---

Difference to salesmen, \$1.67



Page 58, Ex. 9.

\$100 00 Profit.	\$100
16.67 Salesman's <i>share</i> .	15 Salesman's <i>com</i> .
<hr/>	<hr/>
\$83.33 Firm's profit.	\$85 Firm's profit.

When sold at \$950.

$$1\frac{1}{2}\% \text{ of } \$950 = \$14.25$$

$$\frac{1}{6} \quad \text{“} \quad 950 = \quad 8.33$$


---

Difference to salesman, \$5.92

\$100 First profit.

50

---

\$50.00 Second profit.8.33 Saleman's *share* of \$50.

---

\$41.67 Firm's profit.

\$100 First profit.

50

---

50.00 Second profit.14.25 Salesman's *com*. on \$950.

---

\$35.75 Firm's profits.

Difference to Firm.

		Sharing Profit.	On Com.
Firm's profit when sold for \$1000		\$83.33	85.00
“ “ “	950	41.67	35.75
		<hr/>	<hr/>

Difference to firm, \$41.66 \$49.25

Page 58, Ex. 9.

Difference to Salesman.

$\frac{1}{6}$ of 100 = \$16.67	$1\frac{1}{2}\%$ of \$1000 = \$15.
$\frac{1}{6}$ " 50      8 33	$1\frac{1}{2}$ " 950 = 14.25
<hr/>	<hr/>
\$8.34	.75

NOTE.—It will be noticed that while the difference to the salesman when selling on commission is only 75 c., or 5 per cent. less, to the firm the difference is \$49.25, reducing their profit more than half; but that when the profits are shared, the difference between the firm's share and the salesman's share is not so great; and therefore there would be more inducement to sell for the best interest of the firm, when the profits are shared, than when a commission is paid on the amount sold.

Page.	Art.	Example.	Answer.
58	106	10 . . . . .	. 50%

Commission.

61	113	2 . . . . .	\$2503.12
"	"	3 . . . . .	\$2613.75
"	"	4 . . . . .	\$13920.00
"	"	5 . . . . .	\$3000.00
"	"	6 . . . . .	\$9600.00
62	"	7 . . . . .	\$4000.00
"	"	8 $776 \times 100 \div 100 - 3 = 800$	
"	"	9 . . . . .	\$779.49
"	"	10 . . . . .	7%
"	"	11 . . . . .	$\frac{2}{3}\%$
"	"	12 . . . . .	5%
"	"	13 $\$714 \times 100 \div 100 + 2 = 700$	
"	"	14 $\$6141.39 \times 100 \div 100 + 4^2 =$	\$6430.77

Page.	Art.	Example.	Answer.
62	113	15 . . .	Purchases, \$512.20 Com. \$12.80
"	"	16 . . .	Purchased, \$3495.15 Com. \$104.84
"	"	17 . . .	Performed.
"	"	18 . . .	\$165 — 8 45 = \$156.55 $\$156.55 \times 100 \div 6262 = 2\frac{2}{3}\%$
63	"	20 . . .	\$5888.30
"	"	21 . . .	Goods, \$64000. Com. 1600

## Insurance.

68	126	2 . . .	\$53.50
"	"	3 . . .	\$147.47
"	"	5 . . .	\$25.50
"	"	6 . . .	\$112.00
"	"	7 . . .	\$25.00
"	"	8 . . .	\$120.00
"	"	9 . . .	\$10.50

## Miscellaneous Examples.

72	134	1 . . .	\$2.777.22
"	"	2 . . .	28.87 <sup>2</sup>
"	"	3 . . .	$\frac{2}{3}\%$
"	"	4 . . .	\$18925
"	"	6 . . .	$\frac{3}{4}\%$

## Taxes.

75	143	3 . . .	\$234.
"	"	4 . . .	$2\frac{1}{3}\frac{8}{7}\%$
76	"	5 . . .	\$1733

## Interest.

Page.	Art.	Example.	Answer.
80	163	3 . . . . .	\$25.43
"	"	4 . . . . .	\$143.80
"	"	5 . . . . .	\$29.87
"	"	6 . . . . .	\$75.35
81	164	1 . . . . .	\$8.25
"	"	2 . . . . .	\$108.58
"	"	3 . . . . .	\$81.79

## Problems in Interest.

83	168	2 . . . . .	\$25400.00
"	"	3 . . . . .	\$2238.09
"	"	4 . . . . .	\$1012.50
"	"	5 . . . . .	\$2700.00
"	"	6 . . . . .	\$12580.00
"	"	7 . . . . .	\$3833.33
"	"	8 . . . . .	\$2000.00
84	170	2 .	$\left\{ \begin{array}{l} 16 \text{ yrs. 8 mos. at } 6\% \\ 14 \text{ " } 3 \text{ " } 12\frac{6}{7} \text{ ds. @ } 7\% \\ 12 \text{ " } 6 \text{ " } \text{ " } 8\% \end{array} \right.$
"	"	3	$(75042 \div 365) 2 \text{ yrs. } 20\frac{42}{100} \text{ ds.}$
84	171	2 . . . . .	$\left\{ \begin{array}{l} \$1411.76 \text{ at } 5\% \\ 1379.31 \text{ " } 7\% \end{array} \right.$

## True Discount.

85	174	2 . . . . .	Present worth, \$1200. Discount, \$48.
"	"	3 . . . . .	Present worth, \$157.00 Discount, 5.50

## Banking.

Page.	Art.	Example.	Answer.		
86	176	2 . . . . .	\$3455.57		
			<i>Time.</i>	<i>Disc't.</i>	<i>Net Proceeds.</i>
"	"	3 . . . . .	76 ds.	\$9.50	\$740.50
"	"	4 . . . . .	31 "	\$7.54	\$1243.21
"	"	5 . . . . .	70 "	\$5.26	\$445.25
"	"	6 . . . . .	60 "	\$18.75	\$1856.25
87	177	2 . . . . .			\$1822.66
"	"	3 . . . . .			\$6153.85
"	"	4 . . . . .			\$4876.58
88	178	2 . . . . .			\$5530.42
"	"	3 . . . . .			\$428.50

## Interest Accounts.

93	184	3 . . . . .	$\$300 \times 15 = 4500$
			$200 \times 10 = 2000$
			$300 \times 10 = 3000$
			$50 \times 1 = 50$
			$300 \times 22 = 6600$

Total Bal. for 1 day, 16150

Int. on \$16150 for 1 day at 6% = \$2.69

Bal. of Debit and Credit Amts. = 300.00

Bal. due Mar. 1, \$302.69

For the purpose of practice, the accounts of Bennett & Co., L. & B. Curtis, and Geo. M. Grant, may each be worked out by the three methods. The results should agree with those in the book.

## Partial Payments.

Page.	Art.	Example.	Answer.
96	191	2 . . . . .	\$1982.00
98	192	2 . . . . .	\$105.33

## Average of Payments.

106	203	2 . . . . .	May 15, 1867.
107	"	3 . . . . .	Jan. 8, 1868.
"	"	4 . . . . .	Average, July 22, 1868.
			3 mos. and 3 days grace backward brings the date of the note to Apr. 19.
"	"	5 . . . . .	Apr. 15, 1868.
"	"	6 . . . . .	Mar. 10, 1868.
107	203	7 . . . . .	Average, Apr. 17, 1868.
			Date of Notes.
			1st. Jan. 2, 1868.
			2d. Feb. 2, "
			3d. Mar. 3, "
			4th. Apr. 3, "
112	206	4 . . . . .	Due Oct. 23, 1866.

## Account of PARKER BURTON.

(Page 113.)

## 1ST OPERATION.

(By Art. 205.)

*Debit Side.*

Date. 1866.	Time of Credit.	When due.	Amt.	Time from ear. date.	Product.
May 22,	3 mos.	Aug. 22,	\$500	43	21500
" 29,	"	" 29,	250	50	12500
June 10,	30 ds.	July 10,	150	0	000
			<hr/> 900		<hr/> 34000
					<hr/> 38 —

38 days from July 10 = Aug. 17.

*Credit Side.*

Date. 1866.	Time of Credit.	When due.	Amt.	Time from ear. date.	Product.
May 25,	0	May 25,	\$300	0	00
June 9,	0	June 9,	400	15	6000
July 2,	0	July 2,	100	38	3800
			<hr/> 800		<hr/> 9800
					<hr/> 12 +

12 days from May 25 = June 6.

From June 6 to Aug. 17 = 72 days.

 $800 \times 72 = 57600$ .  $\$900 - \$800 = \$100$ . Bal. of  $\frac{1}{100}$ . $57600 \div 100 = 576$ .576 days from Aug. 17 (allowing for leap year) =  
Mar. 15, 1868.NOTE. — 38 days on the debit side is  $\frac{2}{9}$  of a day too much.12 " " credit "  $\frac{1}{4}$  " " little. $\frac{2}{9} + \frac{1}{4} = \frac{17}{36}$ . ( $72 - \frac{17}{36} \times 800 = 572 +$ .)  $800 \times \frac{17}{36} \div 100 = 4$   
nearly, which equals the difference between the results in  
this and the following operation.



## Account of PARKER BURTON.

(Page 113.)

## 2D OPERATION.

(By Art. 206.)

*Debit Side.*

Date, 1866.	Time of Credit.	When Due.	Amt.	Time for ear. date.	Product.
May 22,	3 mos.	Aug. 22,	\$500	× 89	44500
“ 29,	“	“ 29,	250	× 96	24000
June 10,	30 ds.	July 10,	150	× 46	6900
			<hr/>		<hr/>
			900		75400

*Credit Side.*

Date, 1866.	Time of Credit.	When due. 1866.	Amt.	Time from ear. date.	Product.
May 25,	0	May 25,	300	0	00
June 9,	0	June 9,	400	15	6000
July 2,	0	July 2,	100	38	3800
			<hr/>		<hr/>
			800		9800

$$75400 - 9800 = 65600. \quad 900 - 800 = 100 \text{ Bal.}$$

$65600 \div 100 = 656$ , the number of days to be counted from May 25, 1866. Ans. Mar. 11, 1868.

## Account of PARKER BURTON.

(Page 113.)

## 3D OPERATION.

(By Abbreviated Method.)

*Debit Side.*

Date.	Time of	Time from			
1866.	Credit.	Amt.	ear. mo.	Total Time.	Int. at 12 per cent.
May 22,	3 ms.	\$500	0	3 ms. 22 ds.	\$15.00 int. 3 ms.
					2.50 " 15ds.
					1.16 " 7 "
" 29,	"	250	"	3 ms. 29 ds.	7.50 " 3ms.
					1.66 " 20ds.
					.75 " 9 "
June 10,	1 mo.	150	1 m. 2 ms. 10 ds.	3.00 " 2 ms.	
					50 " 10ds.
		<hr/>			
		\$900			
				Total Debit Int.	\$32.07

*Credit Side.*

Date.	Time of	Time from			
1866.	Credit.	Amt.	ear. mo.	Total Time.	Int. at 12 per cent.
May 25,	0	300	0	25 ds.	2.00 int. 20 ds.
					.40 " 5 "
June 9,	0	400	1 mo	1 m. 9 ds.	4.00 " 1mo.
					1.20 " 9 ds.
July 2,	0	100	2 "	2 m. 2 ds.	2.80 " 2mo.
					7 " 2 ds.
		<hr/>			
		\$800			
				Total Credit Int.	\$9.67

$$\$32.07 - \$9.67 = \$22.40. \quad \$900 - \$800 = \$100.$$

$$\text{Int. on } \$100 \text{ for 1 yr. at } 12\% = \$12.$$

$$22.40 \div 12 = 1.866$$

12 mos. in a year.

---


$$10.392$$

30 days in a mo.

---


$$11.760$$

Ans. 1 yr. 10 ms. 12 ds. from May 1, 1866, or  
March 11, 1868.

NOTE.—The three preceding operations are given for the purpose of comparison. When the balance of account is small, the fractions will affect the results, frequently causing a difference. The second operation, (by Art. 206,) being free from fractions, except in the final result, and having the exact time in days, is most nearly accurate, and is therefore much used.

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### Account of R. P. LOSSING & CO.

(Page 113.)

(By Art. 205.)

Mar. 10, 251

June 15,  $188 \times 97 = 18236$

Aug. 14,  $262 \times 157 = 41134$

“ 24,  $466 \times 167 = 77822$

---

1167

---

)137192

$$137192 \div 1167 = 118$$

Mar. 10 + 118 ds. = July 16.

1167 — \$571 = \$596 Bal. of  $\frac{1}{2}\%$ .

Mar. 20, 251

Apr. 1,  $120 \times 12 = 4440$

“ 26,  $150 \times 37 = 5550$

May 24,  $50 \times 65 = 3250$

<u>571</u>	<u>10240</u>
------------	--------------

$10240 \div 571 = 18$

Mar. 20 + 18 ds. = Apr. 7.

From Apr. 7, to July 16 = 90 days.

$571 \times 90 = 51390 \div 596 = 86$ .

86 days from July 6 = Sept. 30.

(By Art. 206.)

Mar. 10, 251

June 15,  $188 \times 97 = 18236$

Aug. 14,  $262 \times 157 = 41134$

“ 24,  $466 \times 167 = 77822$

<u>1167</u>	<u>137192</u>
-------------	---------------

<u>571</u>	<u>16050</u>
------------	--------------

<u>596</u>	<u>)121142(203 days.</u>
------------	--------------------------

1192

1940

1788

203 days from Mar. 10 = Sept. 30.

Mar. 20,  $251 \times 10 = 2510$

Apr. 1,  $120 \times 22 = 2640$

“ 26,  $150 \times 47 = 7050$

May 24,  $50 \times 75 = 3850$

<u>571</u>	<u>16050</u>
------------	--------------

(By Abbreviated Method.)

251	9	.753	251	19	1.589
188	3.14	6.517	120	1.1	1.24
262	5.13	14.235	150	1.25	2.75
466	5.23	26.872	50	2.23	1.383
<hr/>			<hr/>		
1167		48.377	571		6.962
571		6.962			
<hr/>			<hr/>		
3)596	.198)	41.415	(209 days from Mar. 1 =		
<hr/>		39 6	Sept. 26.		
.198 Int. for 1 day		<hr/>			
		1 815			
		1 782			

By adding 1 day whenever the month contains 31 days, the average time will be found to be Sept. 30, as in the two preceding operations.

## Domestic Exchange.

Page.	Art.	Example.	Answer.
139	266	2 . . . . .	\$1831.50
"	"	3 . . . . .	\$8.44
"	"	4 . . . . .	\$571.43
"	"	5 . . . . .	\$1574.31
"	"	6 . . . . .	On Goods, \$416.67
		" Draft, \$112.50	<hr/> 529.17
140	"	7 . . . . .	{ \$2736.28
			{ 2763.82

## Sterling Exchange.

144	272	4 . . . . .	\$7200
"	"	5 . . . . .	\$725
145	273	3 . . . . .	£877. 8 s. 5½ d.
"	"	4 . . . . .	£586. 19 s. 1½ d.

## Exchange on France.

Page.	Art.	Example.	Answer.
148	274	2 . . . . .	\$746.73
"	"	3 . . . . .	\$387.34
"	"	4 . . . . .	51%

## Custom-house Business.

153	289	2 . . . . .	\$97.42
"	"	4 . . . . .	\$476.87
"	"	7 . . . . .	\$2161.46

## Profit and Loss.

155	295	3 . . . . .	\$1897.50
"	"	4 . . . . .	{ Sold for \$3048.
			{ Gain \$648.
"	"	5 . . . . .	{ Gain \$187.59
			{ Sold for \$1688.34
"	"	6 . . . . .	\$1.20

## Miscellaneous Examples.

(See Art. 73.)

				Total.
Steel Pens,	.75	\$1.25	\$1.50	\$6.25
Bonnets,	.37 <sup>2</sup>	.	.	7.50
Tassels,	\$1.87 <sup>2</sup>	.	.	9.37
Sewed Boots,	5.00	.	.	60.00
Gaiter "	1.75	.	.	105.00
Delaine,	.75	.	.	180.00
Cravats,	\$15,	\$18.75,	\$20,	45
				37.50
				140.00
				<hr/> 222.50
				<hr/> \$590.62

Page.	Art.	Example.	Answer.
156	296	2 . . . . .	$11\frac{1}{9}\%$
"	"	3 . . . . .	12%
"	"	4 . . . . .	15%
157	298	3 . . . . .	\$680
"	299	2 . . . . .	9%
"	"	3 . . . . .	15%
"	"	4 . . . . .	$22\frac{18}{31}\%$
"	"	5 . . . . .	50%

## Discounting Bills.

160	305	3 . . . . .	\$24.
"	"	4 . . . . .	{ 25%
			{ 50%
161	306	4 . . . . .	\$2.50
"	"	5 . . . . .	\$176.84+
"	"	6 . . . . .	.50
"	"	7 . . . . .	\$157.90
"	"	8 . . . . .	\$141.82
162			

(See Art. 73.)

Goods.	Cost.	25 per cent. Advance.	Selling price including 5 per cent. discount.
Shawls,	\$6.75	\$8.44 = 95% of	\$8.88
Sheeting,	.15	.19 = "	.20
Hdkfs.,	3.00	3.75 = "	3.95
Muslin,	.20	.25 = "	.26
Delaine,	.24	.30 = "	.32

Total cost of Invoice, \$133.23.



## Price Lists.

(Page 163.)

*Wire-bound Brushes.*

Price.	20 per cent.	Selling Price.	Cost.
\$2.00 — 40 =	\$1.60 =	110% of cost,	\$1.45 + Ans.
2.50 — 50 =	2.00 =	“ “	1.82 “
3.00 — 60 =	2.40 =	“ “	2.17 “
3.50 — 70 =	2.80 =	“ “	2.55 “

*Kalsomine Brushes.*

Price.	20 per cent.	Selling Price.	Cost.
\$24 — \$4.80 =	\$19.20 =	110% of cost,	\$18.36 Ans.
33 — 6.60 =	26.40 =	“ “	24.00 “
42 — 8.40 =	33.60 =	“ “	30.55 “
48 — 9.60 =	38.40 =	“ “	34.91 “
57 — 11.40 =	46.60 =	“ “	42.36 “

*Carriage Bolts.*

Size.	List Price.	20 per cent.	Selling Price.	Cost.
1 in.	2.50 — .50 =	\$2.00 =	110% of cost,	\$1.82
2 “	3.10 — .62 =	2.48 =	“ “	2.25
3 “	3.65 — .73 =	2.92 =	“ “	2.66
2 “	4.55 — .91 =	3.64 =	“ “	3.31
3 “	5.25 — 1.05 =	4.20 =	“ “	3.82
2 “	7.64 — 1.53 =	6.11 =	“ “	5.56
3 “	8.48 — 1.69 =	6.79 =	“ “	6.17

*Tire Bolts.*

Size.	List Price.	20 per cent.	Selling Price.	Cost.
$\frac{3}{16}$ in.	\$1.50	— 30 =	\$1.20 = 110% of cost,	\$1.09
$1\frac{1}{4}$ “	1.68	— 33 =	1.35 = “ “	1.23
$2\frac{3}{4}$ “	1.75	— 35 =	1.40 = “ “	1.27
$2\frac{5}{16}$ “	2.41	— 48 =	1.93 = “ “	1.76

*Wrought Axle Clips.*

Size.	List Price.	20 per cent.	Selling Price.	Cost.
0. 1 & 2	\$1.05	— 21 =	84 = 110% of cost,	76
3	1.10	— 22 =	88 = “ “	80
4	1.20	— 24 =	96 = “ “	87

*Miscellaneous.*

Selling price = 110% of 115% of cost.

Goods.	Cost.	15 per cent. allowance.	Allowing 10 per cent. Discount.
Amer. Glass,	\$1.40	\$1.61 = 90% of	\$1.79
Tire Bolt,	1.00	1.15 = “	1.28
Muslin,	.20	.23 = “	.26
Pens,	.90	1.04 = “	1.15
Carminc Ink,	2.00	2.30 = “	2.55
Broadcloth,	2.40	2.76 = “	3.07
Amer. Cyclop'd's,	60 00	69.00 = “	76.66
Enam'l'd Cards,	.40	.46 = “	.51
Pencils,	3.00	3.45 = “	3.83
Paper,	.35	.40 = “	.44

## Foreign Invoices.

(Page 165.)

Goods which are marked at £ 18 5 s. 4 d., cost us here \$96.32. Therefore, to find the value of a shilling or penny, we divide \$96.32 by £ 18 5 s. 4 d., which gives us about  $2\frac{1}{5}$  c. as the value of a penny,  $26\frac{1}{3}$  c. as the value of a shilling, and \$5.26 as the value of a pound.

To find the cost of each item, multiply the given price by the value as above.

27 s. = \$7.15	£ 2 7 s. 3 d. = \$12.47
	1 3 d. = 5.33
6 s. = 1.58	9 s. = 2.37
8 s. = 2.11	5 s. 4 d. = 1.41
5 s. = 1.32	£ 3 10 s. = 18.43
	£ 3 18 s. 6 d. = 20.67
	£ 3 9 s. = 18.17
	£ 1 17 s. 6 d. = 9.88
2 s. 3 d. = .59	13 s. 6 d. = 3.57
2 s. 6 d. = .66	10 s. = 2.63
6 s. = 1.59	5 s. = 1.32

---

Total cost, \$96.25

Making an allowance for fractions of 7 c., this result agrees with the total cost of the Invoice.

EXPLANATION. — Queensware is counted by dozens; 12 of a certain size is taken as a standard; then a dozen of only half the standard size contains 24 pieces, if  $\frac{2}{3}$  the standard size 18 pieces.  $\frac{1}{1\frac{8}{8}}$  means eighteen pieces of the size No. 18, and consequently contains only 1 dozen standard size.  $\frac{1}{2\frac{4}{4}}$  means 18 of the size No. 24, and is  $\frac{3}{4}$  doz.  $\frac{1}{1\frac{8}{8}}$  and  $\frac{1}{2\frac{4}{4}} = 1\frac{3}{4}$  doz. The number under the line shows the size, the number above how many pieces are taken.

(Page 166.)

	Price.	Quantity.	Total.
11.50 — 3% = 11.15 @ 42 $\frac{1}{3}$	\$4.72	× 13 kilo.	= \$61.36
12.50 — “ = 12.12 @ “	5.13	× 12 “	= 61.56
36.	“	= 15.24 × 4 gro.	= 60.96
42.	“	17.78 × 3 “	= 53.34
48.	“	20.32 × 2 “	= 40.64
6.	“	2.54 × 36 doz.	= 91.44
51 — 4% = 48.95	“	20.72 × 5 gro.	= 103.60
63 — “ = 60.50	“	25.61 × 5 “	= 128.05
21 — 2% = 20.60	“	= 8.72 × 4 gro.	= 34.88
33 — “ = 32.35	“	= 13.69 × 3 “	= 41.07
33 — “ = 32.35	“	= 13.69 × 3 “	= 41.07
45 — “ = 44.10	“	= 18.67 × 3 “	= 56.01
45 — “ = 44.10	“	= 18.67 × 1 “	= 18.67
			<hr/> \$792.65
	Allowance for fractions,		.28
	Proof,		<hr/> \$792.93

Pages 168 and 169. (See Art. 272, 72, 51, and page 151.)

Case 170.	First cost, £ 4. 10 s. 9 d. at par	= \$20.17
“ 171.	“ “ 13. 8 “ 2 “	= 59.60
“ 169.	“ “ 10. 7 “ 7 “	= 46.13

---

First cost of goods, £ 28. 6 s. 6 d. “ = \$125.90

## General Charges.

Com., &c., in Liverpool, £ 2. 9 s. 7 d. @ par	= \$11.02
Am't paid in Phila., \$87. Less duties,	\$52.65 = 34.35
Prem. on Bill of Ex. for £ 32. 18 s. 7 d. @ 9 $\frac{1}{2}$ %	= 13.90

---

\$59.27

\$59.27 = 47 + % of first cost.

*Case 170.*

$$\begin{array}{rcl}
 \text{First cost, } £ 4. 10 \text{ s. } 9 \text{ d. at par} & = & \$20.17 \\
 \text{Special charges. } \left\{ \begin{array}{l} \text{Freight, paper, \&c., } 10 \text{ s. } 3 \text{ d.} \\ \text{Duties on } £ 5. 1 \text{ s. } (@ \$4.84 \\ \text{per } £ = \$24,) @ 40\% \end{array} \right. & = & \begin{array}{r} \$2.28 \\ 9.60 \\ \hline 11.88 \end{array}
 \end{array}$$

$$\$11.88 = 59\% \text{ of } \$20.17$$

$$\text{General charges} = 47\% \text{ " "}$$

$$\text{Total charges} = 106\% \text{ " " } = \$21.38$$

$$\text{Total charges, } \$21.38 + \text{first cost, } \$20.17 = \text{Total cost, } \$41.55.$$

$$\begin{array}{l} \text{Then } £ 4. 10 \text{ s. } 9 \text{ d. cost } \$41.55, \text{ and} \\ 1 \text{ shilling} = 46 \text{ c. nearly, } 1 \text{ d.} = 4 \text{ cents.} \end{array}$$

*Case 171.*

$$\begin{array}{rcl}
 \text{First cost } £ 13. 8 \text{ s. } 2 \text{ d. at par} & = & \$59.60 \\
 \text{Special charges. } \left\{ \begin{array}{l} \text{Freight, \&c., } 19 \text{ s. } 9 \text{ d.} \\ \text{Duties on } £ 14. 8 \text{ s. } (\$69.70) \\ @ 35\% \end{array} \right. & = & \begin{array}{r} \$4.87 \\ 24.39 \\ \hline \$29.26 \end{array}
 \end{array}$$

$$\$29.26 = 49\% \text{ of first cost, } \$59.60$$

$$\text{General charges} = 47\% \text{ " "}$$

$$\text{Total charges} = 96\% \text{ " } \$59.60, = \$57.22$$

$$\$59.60 + \$57.22 = \text{total cost, } \$116.82$$

$$£ 13. 8 \text{ s. } 2 \text{ d. cost } \$116.82. \quad 1 \text{ s.} = 43\frac{1}{2} \text{ c. } \quad 1 \text{ d.} = 3\frac{2}{3} \text{ c.}$$

*Case 169.*

First cost	£ 10. 7 s. 7 d. at par	= \$46.13
Special charges.	{ Freight, 12 s. 6 d.	= 2.78
	{ Duties on £ 11. (\$53.24)	
	{ @ 35%	= 18.63
		<hr/> \$21.41

\$21.41 =  $46\frac{1}{2}\%$  (nearly) of first cost.

General charges, 47 %                      "                      "

Total charges,  $93\frac{1}{2}\%$  of first cost, \$46.13 = \$43.13

\$46.13 + \$43.13 = total cost, \$89.26.

£ 10. 7 s. 7 d. cost \$89.26.    1 s. = 43 c.    1 d. =  $3\frac{1}{2}$  c.

*Recapitulation.*

Total cost of case 170,	\$41.55
"                      "                      " 171,	116.82
"                      "                      " 169,	89.26
<hr/>	
	\$247.63

Allowance must be made for fractions: generally that fraction approximating the true value is taken, which is most convenient for easy calculation.

For practical purposes, and as the most easily calculated when approximate values are all that are required, the method on the following page is frequently employed.

<sup>166</sup>  
Pages ~~168~~ and 169.

By Art. 272, £ 32. 18 s. 7 d. at par = \$146.34

9<sup>2</sup>% of \$146.34 = \$13.90

Add charges paid in Phila., 87.00

Total charges, \$100.90

Par value of invoice, 146.34

Total or advanced cost, \$247.24

Goods in case 170, £ 4. 10 s. 9 d.

" " 171, 13. 8 s. 2 d.

" " 169, 10. 7 s. 7 d.

£ 28. 6 s. 6 d.

Then, if £ 28. 6 s. 6 d. cost \$247.24, 1 shilling cost 43<sup>2</sup>/<sub>3</sub> c., 1 d. cost 3<sup>2</sup>/<sub>3</sub> c. nearly, about one cent on a dollar too much.

(See Art. 73.)

	25 per cent. advance.	Allowing 5 per cent. disc.
Case 170.		
6 s. 9 d. = \$2.97	\$3.71	\$3.90
9 s. 6 d. = 4.18	5.22	5.60
£ 3. 14 s. 6 d. = 32.78	40.97	43.13
Case 171.		
£ 2. 0 s. 11 d. = 18.01	22.51	23.69
£ 11. 7 s. 3 d. = 99.99	125.00	131.57
Case 169.		
£ 10. 7 s. 7 d. = 91.33	114.16	120.17
	<u>\$249.26</u>	<u>\$328.06</u>
	\$311.57	

The price per doz., or of any particular lot, may be found by first deducting the discount in the invoice, if any, and then finding the value of the re-

mainder of the price at the rate of  $3\frac{2}{3}$  c. per penny, as above, as in preceding invoices. Or, divide the value as above found by the number of doz. or articles in the lot.

### Quick Sales and Small Profits.

(Page 171.)

$$105 - 95 = \$10 \text{ gain on } \$95.$$

$$10.00 \div 95 = 10\frac{1}{9}\% \text{ gain on amount invested.}$$

$$110\frac{1}{9}\% \text{ of } \$4000 = \$4421.05 - \$200 = \$4221.05, \\ \text{the proceeds at close of first month.}$$

$$110\frac{1}{9}\% \text{ of } \$4221.05 - \$200 = \text{proceeds of second month, \&c.}$$

Page 173, Art. 314.

First cost.	Selling price.	Marks without repeaters.	With repeaters.
\$1.10	\$1.45	cbe	cbe
.50	.66	rr	rf
1.00	1.30	cmd	cmd
4.80	5.52	eeu	efu
2.50	3.30	mmd	mfd
1.75	1.84	cab	cab
3.00	4.13	bcm	bcm

### Annual Production.

(Page 173.)

	Silver.	Gold.
Coin valuation,	\$81,904,054	188,677,413
30% premium,	24,571,216	56,603,224
	<hr/>	<hr/>
	\$106,475,270	\$245,280,637
		106,475,270
		<hr/>
		\$351,755,907



## Partnership Settlements.

Page.	Art.	Example.		Answer.
175	319	2	Lost,	\$14,000
177	320	3	First, 10000	
			Second, 5000	
			Third, 2000	
			Fourth, 1000	
				<u>\$18,000</u>

Page 182. Ex. 6.

	Resources.		Liabilities.
Cash,	\$4,250.00	Bills Pay.,	\$500.00
Mdse.,	16,500.00	Pers. Debts,	630.35
Bills Rec.,	1,000.00		<u></u>
Pers. Debts,	4,120.67		\$1,130.35
	<u>\$25,870.67</u>	<i>Firm's net capital,</i>	24,740.32
			<u>\$25,870.67</u>

A's investment,	\$6,000.00	
Int. 1 yr.,	360.00	
	<u></u>	\$6,360.00
Am't withdrawn,	1,007.57	
Interest,	20.15	1,027.72
	<u></u>	<u></u>
A's credit bal.		\$5,332.28
		<u></u>

B's investment,	\$6,000.00	
Int. 1 yr.,	360.00	
	<u></u>	\$6,360.00
Am't withdrawn,	2,049.61	
Interest,	20.50	2,070.11
	<u></u>	<u></u>
B's credit bal.,		\$4,289.89
		<u></u>

C's investment,	\$6,000.00	
Int. 1 yr.,	360.00	
		<u>\$6,360.00</u>
Am't withdrawn,	\$3,213.92	
Interest,	28.12	3,242.04
		<u>\$3,117.96</u>

Firm's present worth,	\$24,740.32
A's credit bal.,	\$5,332.28
B's " "	4,289.89
C's " "	3,117.96
	<u>12,740.13</u>
Firm's net gain,	\$12,000.19

A's credit bal.,	\$5,332.28	B's credit bal.,	\$4,289.89
$\frac{1}{3}$ gains,	4,000.06	$\frac{1}{3}$ gains,	4,000.06
	<u></u>		<u></u>
A's net cap.,	\$9,332.34	B's net cap.,	\$8,289.95

C's credit bal.,	\$3,117.96
$\frac{1}{3}$ gains,	4,000.07
	<u></u>
C's net cap.,	\$7,118.03

Proof.

A's net capital,	\$9,332.34
B's " "	8,289.95
C's " "	7,118.03
	<u></u>

Firm's net cap., as above, \$24,740.32

Page.	Art.	Example.	Answer.
193	350	1 . . .	\$139,965,374.32
			Each inhabitant, \$4.67
"	"	2	Annual int., \$169,672,137.54
			Each inhabitant's share, \$4.84

## Dividends and Investments.

Page.	Art.	Example.	Answer.
197	351	2 . . . . .	\$2000
200	354	3 . . . . .	\$66.67
"	"	4 . . . . .	\$83.33
"	"	6 . . . . .	{ 1st. \$75 2d. \$60
201	356	3 . . . . .	\$33.480
"	357	3 . . . . .	\$50
"	358	2 . . . . .	\$96.87 <sup>2</sup>
202	"	3 . . . . .	\$97.46

## Miscellaneous Examples.

202	358	2 . . . . .	10-40s by $\frac{16}{133}\%$
"	"	3 . . . . .	Railroad stock by $\frac{139}{533}\%$
"	"	4 . . . . .	$7\frac{7}{13}\%$

## United States Bonds in Europe.

204	358	2 . . . . .	\$5164.22
"	"	3 . . . . .	\$5.050.19
205	"	2 . . . . .	Ill. Cen., \$116.89
			Erie, \$56.95
"	"	3 . . . . .	\$6.80 per £.

## Compound Interest.

206	360	2 . . . . .	Of \$425. \$111.55
			" 275.50. 73.81
209	365	2 . . . . .	3 yrs. 6 mos. at 12% = 7 yrs.
			@ 6%. Am't of \$1 per
			Table for 7 yrs. at 6% =
			\$1.50363, which multiplied
			by 950 = \$1428.45.
			\$1428.45 — \$950 = \$478.45. Ans.

Page.	Art.	Example.	Answer.
209	365	3	Am't for 8 yrs. @ $1\frac{1}{2}\%$ = \$1.126479. (See table.) $\$1.126476 \times 4600 = \$5181.50$ $\$5181.50 - \$4600 = \$581.80$

## Annuities.

216	385	1 . . . . .	\$4,166.67.
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## Miscellaneous Examples.

216	385	1	First value of \$1 for 10 yrs. = \$13.181 $\$13.181 \times 500 = \$379.40.$
"	"	2	Present worth of \$1 annually for 6 yrs. at $7\%$ = \$4.76653. $\$4.76653 \times 500 = \$2383.27.$
"	"	3	Present value of annuity of \$1 for 12 yrs. = \$8.3844. $\$8.38344 \times 1800 = \$15090.92.$
"	"	4	Present value of \$1 annually for 10 yrs. at $7\%$ = \$7.02358. $\$7.02358 \times 250 = \$1755.89.$

## Building and Loan Associations.

218	391	2	Comp. Int. of \$1 at $6\%$ for 6 yrs. = \$1.4185 $\$1.4185 \times 180 = \$255.22$ $\$1.4185 \times 174.68 = 247.78$
-----	-----	---	--

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Ans. 7.55

REMARK. — If a bonus of more than 10 per cent. is paid to the association, less than \$180 would be received, at the same cost; whereas, if the amount is borrowed in the usual way, the smaller the amount borrowed the less will be the cost of the loan.

## Bill Receipted by Firm.

(Page 259.)

48 × .96 =	\$10.56
12 × .18 =	2.16
10 × .35 =	3.50
20 × .40 =	8.00
7 × 3.25 =	22.75
2 × .75 =	1.50
1	2.00
$3\frac{1}{2} \times 1.90 =$	6.65
	<hr/>
	\$57.12

## Invoice of Dry Goods.

(Page 262.)

2804 yds.	@	17 c.	=	\$476.68
450 "	"	78	=	351.00
120 "	"	2.75	=	330.00
200 "	"	1.30	=	260.00
40 shawls,	"	2.13	=	85.20
6 "	"	11.00	=	66.00
90 yds.	"	.85	=	76.50
12 shawls,	"	9.00	=	108.00
2 ps. ribbon,	"	1.50	=	3.00
155 yds.	"	.42	=	65.10
90 "	"	.52	=	46.80
$730\frac{1}{4}$ "	"	$.28\frac{1}{2}$	=	208.12
			<hr/>	
				\$2,076.40



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